

S/N 10/602,323

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kie Y. Ahn et al.

Examiner: Fernando L Toledo

Serial No.: 10/602,323

Group Art Unit: 2823

Filed: June 24, 2003

Docket: 1303.101US1

Title: LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRIC LAYERS

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Supplemental Information Disclosure Statement. However, if an Office Action on the merits has been mailed, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Supplemental Information Disclosure Statement considered.

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,
KIE Y. AHN ET AL.

By their Representatives,
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
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(612) 371-2157

Date

23 August 2004

By

David R. Cochran

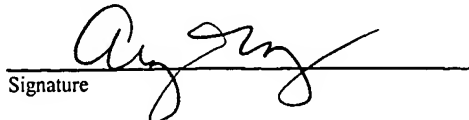
Reg. No. 46,632

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 23rd day of August, 2004.

Name

Amy Moriarty

Signature



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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Group Art Unit	2823
Examiner Name	Toledo, Fernando

Sheet 1 of 5

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US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
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	US-2003/0052356	03/20/2003	Yang, Haining , et al.	257	309	10/11/2002
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	WO-0233729A2	04/25/2002	Fink, S. T.	H01J	37/32	

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		AARIK, JAAN , et al., "Influence of substrate temperature on atomic layer growth and properties of HfO ₂ /sub 2/ thin films", Thin Solid Films, 340(1-2), (1999), 110-116	
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Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;"><i>Complete if Known</i></td> </tr> <tr> <td style="width: 60%;">Application Number</td> <td>10/602,323</td> </tr> <tr> <td>Filing Date</td> <td>June 24, 2003</td> </tr> <tr> <td>First Named Inventor</td> <td>Ahn, Kie</td> </tr> <tr> <td>Group Art Unit</td> <td>2823</td> </tr> <tr> <td>Examiner Name</td> <td>Toledo, Fernando</td> </tr> <tr> <td colspan="2" style="text-align: center;">Attorney Docket No: 1303.101US1</td> </tr> </table>	<i>Complete if Known</i>		Application Number	10/602,323	Filing Date	June 24, 2003	First Named Inventor	Ahn, Kie	Group Art Unit	2823	Examiner Name	Toledo, Fernando	Attorney Docket No: 1303.101US1	
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		Devices Meetings 2002, (2002),429-432	
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COMMUNICATION CONCERNING RELATED APPLICATIONS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Applicants would like to bring to the Examiner's attention the following related applications in the above-identified patent application:

<u>Serial/Patent No.</u>	<u>Filing Date</u>	<u>Attorney Docket</u>	<u>Title</u>
09/944,981	August 30, 2001	1303.021US1	GATE OXIDES AND METHODS OF FORMING
09/945,535	August 30, 2001	1303.026US1	HIGHLY RELIABLE AMORPHOUS HIGH-K GATE OXIDE ZrO ₂
10/028,643	December 20, 2001	1303.030US1	LOW-TEMPERATURE GROWN HIGH QUALITY ULTRA-THIN CoTiO ₃ GATE DIELECTRICS
10/052,983 6,767,795	January 17, 2002	1303.031US1	HIGHLY RELIABLE AMORPHOUS HIGH-k GATE DIELECTRIC ZrO _x N _y
10/027,315	December 20, 2001	1303.033US1	LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS
09/797,324	March 1, 2001	303.717US1	METHODS, SYSTEMS, AND APPARATUS FOR UNIFORM CHEMICAL-VAPOR DEPOSITIONS
10/099,194	March 13, 2002	1303.044US1	EVAPORATION OF Y-Si-O FILMS FOR MEDIUM-k DIELECTRICS
10/081,439	February 20, 2002	1303.046US1	EVAPORATED LaAlO ₃ FILMS FOR GATE DIELECTRICS
10/137,058	May 2, 2002	303.802US1	ATOMIC LAYER DEPOSITION AND CONVERSION

COMMUNICATION CONCERNING RELATED APPLICATIONS

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10/137,168	May 2, 2002	1303.048US1	METHODS FOR ATOMIC-LAYER DEPOSITION OF ALUMINUM OXIDES IN INTEGRATED CIRCUITS
10/137,499	May 2, 2002	1303.050US1	ATOMIC LAYER-DEPOSITED LaAlO ₃ FILMS FOR GATE DIELECTRICS
10/163,481	June 5, 2002	1303.056US1	ATOMIC LAYER-DEPOSITED HfAlO ₃ FILMS FOR GATE DIELECTRICS
10/163,686	June 5, 2002	1303.059US1	Pr ₂ O ₃ -BASED La-oxide GATE DIELECTRICS
10/209,581	July 30, 2002	1303.061US1	ATOMIC LAYER DEPOSITED NANOLAMINATES OF HfO ₂ /ZrO ₂ FILMS AS GATE DIELECTRICS
10/219,870	August 15, 2002	1303.069US1	LANTHANIDE DOPED TiO _x DIELECTRIC FILMS BY PLASMA OXIDATION
10/219,878	August 15, 2002	1303.070US1	LANTHANIDE DOPED TiO _x DIELECTRIC FILMS
10/229,903	August 28, 2002	1303.078US1	ATOMIC LAYER DEPOSITED HfSiON DIELECTRIC FILMS
10/233,309	August 29, 2002	1303.079US1	ATOMIC LAYER DEPOSITED LANTHANIDE DOPED TiO _x DIELECTRIC FILMS
10/309,583	December 4, 2002	1303.082US1	ATOMIC LAYER DEPOSITED ZR-SN-TI-O FILMS USING TiH ₄
10/309,935	December 4, 2002	1303.083US1	ATOMIC LAYER DEPOSITED Zr-Sn-Ti-O FILMS
10/379,470	March 4, 2003	1303.090US1	ATOMIC LAYER DEPOSITED DIELECTRIC LAYERS

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10/403,734	March 31, 2003	1303.092US1	ATOMIC LAYER DEPOSITED ZrAl _x O _y DIELECTRIC LAYERS
10/420,307	April 22, 2003	1303.097US1	ATOMIC LAYER DEPOSITED ZrTiO ₄ FILMS
10/602,315	June 24, 2003	1303.107US1	LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS
09/779,959 6,495,436	February 9, 2001		FORMATION OF METAL OXIDE GATE DIELECTRIC
09/838,335 6,514,828	April 20, 2001		METHOD OF FABRICATING A HIGHLY RELIABLE GATE OXIDE
09/881,408	June 13, 2001		Dielectric layer forming method and devices formed therewith
09/908,767 6,534,420	July 18, 2001		METHODS FOR FORMING DIELECTRIC MATERIALS AND METHODS FOR FORMING SEMICONDUCTOR DEVICES
10/765,619	January 27, 2004	1303.033US2	LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS
10/7685,97	January 30, 2004	1303.033US3	LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS
10/789,042	February 27, 2004	1303.050US2	ATOMIC LAYER-DEPOSITED LaAlO ₃ FILMS FOR GATE DIELECTRICS
10/789,044	February 27, 2004	1303.070US2	LANTHANIDE DOPED TiO _x DIELECTRIC FILMS
	October 10, 2003		LANTHANIDE OXIDE/ ZIRCONIUM OXIDE ATOMIC LAYER DEPOSITED NANOLAMINATE GATE DIELECTRICS

10/052,983	January 17, 2002		HIGHLY RELIABLE AMORPHOUS HIGH K GATE DIELECTRIC ZROXNY
10/225,715	August 21, 2002		COMPOSITE DIELECTRIC FORMING METHODS AND COMPOSITE DIELECTRICS
10/352,507	January 27, 2003		ATOMIC LAYER DEPOSITION OF METAL OXYNITRIDE LAYERS AS GATE DIELECTRICS AND SEMICONDUCTOR DEVICE STRUCTURES UTILIZING METAL OXYNITRIDE LAYERS
10/863,953	June 9, 2004	1303.031US2	HIGHLY RELIABLE AMORPHOUS HIGH-k GATE DIELECTRIC ZrOxNy
09/779,959 6,495,436	February 9, 2001		FORMATION OF METAL OXIDE GATE DIELECTRIC
09/838,335 6,514,828	April 20, 2001		METHOD OF FABRICATING A HIGHLY RELIABLE GATE OXIDE
09/881,408	June 13, 2001		Dielectric layer forming method and devices formed therewith
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Respectfully submitted,
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Date 23 August 2004 By David R. Cochran
David R. Cochran
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 23rd day of August, 2004.

Name Amy Moriarty

Signature Amy Moriarty